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On additivity of mappings on measurable functions

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Abstract

We prove the additivity of regular l-additive mappings T: [InlineMediaObject not available: see fulltext.] → [0,+∞] of a hereditary cone [InlineMediaObject not available: see fulltext.] in the space of measurable functions on a measure space. Some examples are constructed of non--additive l-additive mappings T. The monotonicity of l-additive mappings T: [InlineMediaObject not available: see fulltext.] → [0,+∞] is established. The examples are constructed of nonmonotone d-additive mappings T. Let (S, +) be a commutative cancellation semigroup. Given a mapping T: [InlineMediaObject not available: see fulltext.] → S, we prove the equivalence of additivity and l-additivity. It is shown that a strongly regular 2-homogeneous l-subadditive mapping T is subadditive. All results are new even in case [InlineMediaObject not available: see fulltext.] = L∞ +. © 2014 Pleiades Publishing, Ltd.

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Keywords

additive mapping, cancellation semigroup, cone, measurable function, measure space, monotone mapping, vector lattice, weight